

OLD FERDINAND CITY RESERVOIR

Dubois County

2006 Fish Management Report

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EXECUTIVE SUMMARY

- A general lake survey was conducted on June 26 and 27, 2006. An aquatic vegetation survey was conducted on July 19.
- The Secchi disk reading was 7 ft and the conductivity was 174 μ S.
- Submersed vegetation was found to a maximum depth of 9 ft. Eurasian watermilfoil and naiad spp. were the dominant plants, occurring at 84% and 76% of the sites. Filamentous algae occurred at 8% of the sites.
- A total of 250 fish, representing 8 species, was collected during the survey. Bluegill ranked first by number followed by largemouth bass and redear sunfish. Largemouth bass ranked first by weight followed by channel catfish and bluegill.
- Largemouth bass growth was good to fast with age-4 and age-5 bass averaging 14.6 and 15.8 in. Bluegill growth was good.
- The DFW should maintain the standard regulations and continue to stock 700 channel catfish biennially.
- An aquatic vegetation control program is recommended.

INTRODUCTION

Old Ferdinand City Reservoir is a 14.6-acre impoundment located $\frac{1}{4}$ mi east of the City of Ferdinand in Dubois County. The lake is owned by the City of Ferdinand and was historically used as the city's water supply from 1915 to 1998. Angler access includes a paved boat ramp and shoreline fishing along the dam. No outboard motors are allowed and there are no fees to access the lake.

In 1984, the Division of Fish and Wildlife (DFW) started stocking 700 channel catfish biennially. This survey was conducted to evaluate fish population changes since the previous survey in 1997. Currently, Old Ferdinand's fishery is regulated by the state's standard length and bag limits.

METHODS

A general survey was conducted on June 26 and 27, 2006. The lake's physical and chemical characteristics were measured according to DFW guidelines (Shipman 2001). Submerged aquatic vegetation was sampled on July 19 using Pearson's guidelines (2004). A GPS was used to record the location of all sampling sites.

Fish collection effort consisted of pulsed DC night electrofishing with two dippers for 0.5 h, and one trap net and two experimental-mesh gill nets fished overnight. All fish collected were measured to the nearest 0.1 in TL. Average weights were estimated by using Fish Management District 7 averages. Fish scale samples were taken from a subsample of sport fish for age and growth analysis. Proportional stock density and RSD were only calculated for bluegill, because not enough largemouth bass were collected to achieve reliable index values (Anderson and Neumann 1996). In addition, the bluegill fishing potential index (BGFP) was calculated (Ball and Tousignant 1996).

RESULTS

Old Ferdinand has a maximum depth of 20 ft. The Secchi disk reading was 7 ft and dissolved oxygen concentrations were marginal for fish survival below 14 ft. The conductivity was 174 μ S.

Submersed vegetation was found in 96% of the littoral sites, to a maximum depth of 9 ft. The overall mean rake score was 3.44. Eurasian watermilfoil's site frequency was 84% followed by naiad spp. (76%). Buckbrush, purple loosestrife, cattail spp., duckweed, and filamentous algae were also observed.

A total of 250 fish, representing eight species, was collected that weighed approximately 67 lbs. Bluegill ranked first by number (48%), followed by largemouth bass (20%), and redear sunfish (13%). Largemouth bass ranked first by weight (51%), followed by channel catfish (17%), and bluegill (13%). Warmouth, redbfin pickerel, and yellow bullhead were collected in minimal number. Species collected in past surveys, but not in this survey, include yellow perch, white crappie, green sunfish, brown bullhead, black bullhead, and blackstripe topminnow.

A total of 119 bluegill was sampled that weighed 9 lbs. They ranged in length from 1.6 to 7.9 in. The catch rates were 164.0/electrofishing h, 36.0/trap net lift, and 0.5/gill net lift. The electrofishing catch rate in 1997 was 676.0/h. The bluegill PSD was 8 and the BGFP was 11. Bluegill growth was good with age-5 and age-6 fish averaging 5.9 and 7.1 in, however, it has slowed since 1997. An age-5 bluegill in 1997 averaged 8.0 in.

A total of 50 largemouth bass was sampled that weighed 34 lbs. They ranged in length from 4.5 to 16.5 in. The catch rates were 98.0/electrofishing h, 0.0/trap net lift, and 0.5/gill net lift. In 1997, the electrofishing catch rate was 472.0/h with age-0 bass, and 130.6/h excluding age-0 bass. Largemouth bass growth was good for ages 1, 2, and 3, while ages 4 and 5 grew fast. Bass growth was better in 2006 than 1997 with age-4 bass averaging 14.6 in versus 13.1 in.

Thirty-three redear sunfish were sampled that weighed 6 lbs. They ranged in length from 2.7 to 8.1 in. The catch rates were 42.0/electrofishing h, 12.0/trap net lift, and 0.0/gill net lift, which was similar to 1997. Redear sunfish growth was slow for age-3 and older fish and well below 1997 levels.

A total of 17 channel catfish was sampled that weighed 12 lbs. They ranged in length from 11.1 to 17.4 in. The catch rates were 10.0/electrofishing h, 0.0/trap net lift, and 6.0/gill net lift.

Sixteen black crappie were sampled that weighed 4 lbs. They ranged in length from 5.0 to 8.7 in. The relative abundance by number and weight was 6%. Catch rates were 4.0/electrofishing h, 13.0/trap net lift, and 0.5/gill net lift. Black crappie growth was good for age-1 and age-2 fish but was not maintained through older crappie.

DISCUSSION

Since the 1997 survey, the bluegill electrofishing catch rate decreased by 75% while the PSD slightly increased from 5 to 8. According to Anderson (1985), a balanced bluegill population should have a PSD of 20 to 60. A low PSD indicates a fishery with too many small fish. This low PSD is likely due to the abundance of age-3 fish in combination with excessive vegetation. In addition, the BGFP index score decreased from 20 to 11, changing the lake's classification from a good bluegill fishery to a marginal bluegill fishery. The lower BGFP was due to the decreased electrofishing catch rate. Growth was good with age-4 and age-5 bluegill averaging 5.9 and 7.1 in.

The largemouth bass electrofishing catch rate decreased by 25% since 1997. However, the proportion of bass 14 in and greater increased from 2% in 1997 to 24%. In addition, growth was fast for age-4 and age-5 fish.

A small black crappie population has developed that can be utilized by anglers. Thirty-eight percent were longer than 8 in.

The channel catfish catch was good and a population has developed that can be utilized by anglers. Channel catfish should continue to be stocked biennially.

Aquatic vegetation levels were high enough to impact angler access and negatively influence the fishery. The excessive vegetation reduces the ability of bass to prey on bluegill (Bettoli et al. 1992), which results in poor growth for both bass and bluegill. If the City is interested in reducing aquatic vegetation levels, they can consult the District 7 Fisheries Biologist. A reduction in vegetation would improve fishing and angler access. The city would be fiscally responsible for the treatment.

RECOMMENDATIONS

- If the City would like to implement an aquatic vegetation control program, they should contact the District 7 Fisheries Biologist.

LITERATURE CITED

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APPENDIX